The listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (original) A detector framing node to communicate image data with a host memory of a host computer, comprising:

first and second clocks respectively operating at first and second clock frequencies;

an image detection interface receiving image data at the first clock frequency;

a control unit controlling communication of the image data from the image detection interface within the detector framing node; and

a computer communication interface communicating the image data to the host memory at the second clock frequency.

2. (original) The detector framing node according to claim 1, wherein said image detection interface is a fiber optic interface receiving the image data from an image detection system over an optical fiber data link.

3. (original) The detector framing node according to claim 2, wherein the image data is received in real time.

4. (original) The detector framing node according to claim 2, wherein the image data is transmitted from the image detection system to the fiber optic interface serially at a rate of at least 1 Gbit/sec.

5. (original) The detector framing node according to claim 1, further comprising:

a memory unit to receive and store the image data received by the image detection interface ,

wherein the control unit reads out the stored image data from the memory unit during communication to the host memory .

6. (original) The detector framing node according to claim 5, wherein the memory unit comprises a plurality of frame buffer memory units.

7. (original) The detector framing node according to claim 6, wherein the detector framing node is a PCI card, and each of the frame buffer memory units is comprised of a pair of random access memory chips alternately disposed on alternate sides of the PCI card.

8. (original) The detector framing node according to claim 1, further comprising:

a third clock respectively operating at a third clock frequency, wherein the control unit controls communication of the image data from the image detection interface to the computer communication interface at the third clock frequency.

9. (original) The detector framing node according to claim 8, wherein the first, second, and third clocks are respectively controlled by oscillations from a single clock oscillator.

10. (original) The detector framing node according to claim 1,

said image detection interface being a fiber optic interface receiving the image data in real time from an image detection system over an optical fiber data link , the detector framing node further comprising:

a memory unit to receive and store the image data received by the fiber optic interface ,

wherein the control unit reads out the stored image data from the memory unit and transfers the image data to the computer communication interface during communication of the image data to the host memory .

11. (original) The detector framing node according to claim 1, wherein the host computer runs a non-real time operating system.

12. (original) The detector framing node according to claim 1, wherein the host computer runs a real time operating system.

13. (original) The detector framing node according to claim 1, wherein the host computer runs a task based operating system.

14. (original) The detector framing node according to claim 1, wherein the image data is radioscopic image data and the image detection system is an x-ray detection system .

15. (original) A detector framing node card to communicate image data with a host memory of a host computer , comprising:

an image detection interface to receive image data from an image detection system ;

a plurality of frame buffer memory units to receive the image data from the image detection interface , each of the frame buffer memory units comprised of a pair of random access memory chips alternately disposed on alternate sides of the detector framing node card ; and

a computer communication interface communicating the image data from the plurality of frame buffer memory units to the host memory .

16. (original) The detector framing node card according to claim 15, wherein said image detection interface is a fiber optic interface receiving the image data from the image detection system over an optical fiber data link .

17. (original) The detector framing node card according to claim 16, wherein the image data is received in real time.

18. (original) The detector framing node card according to claim 16. wherein the image data is transmitted from the image detection system to the fiber optic interface serially at a rate of at least 1 Gbit/sec.

19. (original) The detector framing node card according to claim 15, further comprising:

first and second clocks respectively operating at first and second clock frequencies; and

a control unit controlling communication of the image data from the plurality of frame buffer memory units to the computer communication interface at the first clock frequency,

wherein the communication interface communicates the image data to the host memory at the second clock frequency.

20. (original) The detector framing node card according to claim 19, further comprising:

a third clock respectively operating at a third clock frequency, wherein the image data is communicated from the plurality of frame buffer memory units to the computer communication interface at the third clock frequency.

21. (original) The detector framing node card according to claim 20, wherein the first, second, and third clocks are respectively controlled by oscillations from a single clock oscillator.

22. (original) The detector framing node card according to claim 15, wherein the detector framing node card is a PCI card, and the computer communication bus is a PCI bus operating at a frequency of at least 33 MHz.

23. (original) The detector framing node card according to claim 15, wherein the host computer runs a non-real time operating system.

24. (original) The detector framing node according to claim 15, wherein the host computer runs a real time operating system.

25. (original) The detector framing node according to claim 15, wherein the host computer runs a task based operating system.

26. (original) The detector framing node according to claim 15, wherein the image data is radioscopic image data and the image detection system is an x-ray detection system .

27. (original) A detector framing node to communicate image data with a host memory of a host computer , comprising:

an image detection interface receiving image data from an image detection system ;

a control unit controlling communication of the image data from said image detection interface within the detector framing node ; and

a computer communication interface communicating the image data to the host memory .

28. (original) The detector framing node according to claim 27, wherein said image detection interface is a fiber optic interface receiving the image data from the image detection system over an optical fiber data link .

29. (original) The detector framing node according to claim 27, wherein the image data is transmitted from the image detection system to the fiber optic interface serially at a rate of at least 1 Gbit/sec.

30. (original) The detector framing node according to claim 27, wherein the image data is received in real time.

31. (original) The detector framing node according to claim 27, further comprising:

a memory unit to receive and store the image data received by the image detection interface ,

wherein the control unit reads out the stored image data from the memory unit during communication to the host memory .

32. (original) The detector framing node according to claim 31, wherein the image data is transmitted from the image detection system as a plurality of image frames, and wherein the memory unit comprises a plurality of frame buffer memory units each of sufficient size to hold an image frame of the plurality of image frames.

33. (original) The detector framing node according to claim 32, wherein the detector framing node is a PCI card , and each of the frame buffer memory units is comprised of a pair of random access memory chips alternately disposed on alternate sides of the PCI card .

34. (original) The detector framing node according to claim 27, further comprising:

first, second, and third clocks respectively operating at first, second, and third clock frequencies,

wherein the image data is received by the image detector interface at the first clock frequency and stored in a plurality of frame buffer memory units , the computer communication interface communicates the image data to the host memory at the second clock frequency, and the image data is communicated from the plurality of frame buffer memory units to the computer communication interface at the third clock frequency.

35. (original) The detector framing node according to claim 27,

said image detection interface being a fiber optic interface receiving the image data in real time from the image detection system over an optical fiber data link , the detector framing node further comprising:

a memory unit to receive and store the image data received by the fiber optic interface ,

wherein the control unit reads out the stored image data from the memory unit and transfers the image data to the computer communication interface during communication to the host memory .

36. (original) The detector framing node according to claim 27, wherein the host computer runs a non-real time operating system .

37. (original) The detector framing node according to claim 27, wherein the host computer runs a real time operating system.

38. (original) The detector framing node according to claim 27, wherein the host computer runs a task based operating system .

39. (original) The detector framing node according to claim 27, wherein the image data is radioscopic image data and the image detection system is an x-ray detection system .

40. (original) An imaging system, comprising:

an image detection system to detect a radiographic image and output corresponding radioscopic image data across an optical fiber data link ;

a detector framing node comprising a fiber optic interface to receive the radioscopic image data from the optical fiber data link and a computer communication interface to output the image data received by the fiber optic interface onto a computer communication bus ; and

a host computer having at least one host processor and executing operations with a host operating system , said host computer receiving the image data from the computer communication interface into a host memory .

41. (original) The system according to claim 40, wherein the image data is received by the fiber optic interface in real time.

42. (original) The system according to claim 40, wherein the image data is transmitted from the image detection system to the fiber optic interface serially at a rate of at least 1 Gbit/sec.

43. (original) The system according to claim 40, said detector framing node further comprising:

a memory unit to receive and store the image data received by the image detection interface ; and

a control unit to read out the stored image data from the memory unit and to transfer the image data to the computer communication interface during communication to the host memory .

44. (original) The system according to claim 40, wherein the memory unit comprises a plurality of frame buffer memory units .

45. (original) The system according to claim 44, wherein the detector framing node is a PCI card , and each of the frame buffer memory units is comprised of a pair of random access memory chips alternately disposed on alternate sides of the PCI card .

46. (original) The system according to claim 40, wherein the host computer runs a non-real time operating system .

47. (original) The system according to claim 40, wherein the host computer runs a real time operating system.

48. (original) The system according to claim 40, wherein the host computer runs a task based operating system .

49. (original) The system according to claim 40, wherein the image detection system includes a flat panel detector (116) having an amorphous silicon photo-diode array outputting the radioscopic image data in response to detection of the radiographic image.

50. (original) A detector framing node interfacing with a host computer along a computer communication bus and interfacing with a radiation generation system along a real time bus (379), the detector framing node comprising:

a control unit to execute a plurality event instructions received from the host computer ;

a real time bus interface connecting said control unit to the real time bus, wherein said control unit controls the radiation generation system by transmitting control signals to the radiation generation system along the real time bus upon execution of the event instructions.

51. (original) The detector framing node according to claim 50, wherein said real time bus is a bi-directional real time bus and the radiation generation system is an x-ray generation system (109) that communicates with said detector framing node bi-directionally.

52. (original) The detector framing node according to claim 50, further comprising:

an image detection interface receiving image data from an image detection system ; and

a computer communication interface communicating the image data received from the image detection interface to a host memory of the host computer under control of said control unit

53. (original) The detector framing node according to claim 52, wherein the image detection interface is a fiber optic interface receiving the image data from an image detection system over an optical fiber data link .

54. (original) The detector framing node according to claim 53, wherein the image data is received by the fiber optic interface in real time.

55. (original) The detector framing node according to claim 52, further comprising:

a memory unit to receive and store the image data received by the image detection interface ,

wherein the control unit reads out the stored image data from the memory unit during communication to the host memory .

56. (original) The detector framing node according to claim 55, wherein the memory unit comprises a plurality of frame buffer memory units .

57. (original) The detector framing node according to claim 50, wherein the detector framing node is a PCI card , and the computer communication bus is a PCI bus .

58. (original) The detector framing node according to claim 50, wherein the host computer runs a non-real time operating system .

59. (original) The detector framing node according to claim 50, wherein the host computer runs a real time operating system.

60. (original) The detector framing node according to claim 50, wherein the host computer runs a task based operating system .

61. (original) The detector framing node according to claim 50, further comprising:

a fiber optic interface receiving radioscopic image data from an x-ray detection system over a fiber optic data link ; and

a computer communication interface communicating the radioscopic image data received from the fiber optic interface to a host memory of the host computer under control of said control unit .

62. (original) The detector framing node according to claim 61, wherein the radioscopic image data is received from the x-ray detection system in real time.

63. (original) A card to control a radiation generation system and receive image data from an image detection system , the card communicating with a host computer having at least one host processor and a host memory storing data, the card comprising:

an image detection interface to receive the image data from the image detection system ;

a memory unit to store the image data received by the image detection interface ; and

a computer communication interface to communicate the image data from the memory unit to the host memory .

64. (original) The card according to claim 63, wherein the card is programmable to receive image data from a selected flat panel detector of a plurality of different flat panel detectors.

65. (original) The card according to claim 63, wherein the memory unit is comprised of a plurality of pairs of random access memory chips alternately disposed on alternate sides of the card .

66. (original) The card according to claim 63, wherein said image detection interface is a fiber optic interface receiving the image data from the image detection system over an optical fiber data link .

67. (original) The card according to claim 66, wherein the image data is transmitted from the image detection system to the fiber optic interface serially at a rate of at least 1 Gbit/sec.

68. (original) The card according to claim 63, wherein the image data is received in real time.

69. (original) The card according to claim 63, wherein the host computer runs a non-real time operating system .

70. (original) The card according to claim 63, wherein the host computer runs a real time operating system.

71. (original) The card according to claim 63, wherein the host computer runs a task based operating system .

72. (original) The card according to claim 63, wherein the image data is radioscopic image data and the image detection system is an x-ray detection system .

73. (original) The card according to claim 63, wherein the card is a PCI card , and said memory unit includes a plurality of frame buffer memory units ,

wherein each frame buffer memory unit is comprised of a pair of random access memory chips alternately disposed on alternate sides of the PCI card .